METHOD AND APPARATUS FOR ESTIMATING AND CORRECTING GAIN AND PHASE IMBALANCE IN A CODE DIVISION MULTIPLE ACCESS SYSTEM

ABSTRACT OF THE DISCLOSURE

Gain and phase imbalance is estimated by using an IQ-swapped spreading sequence in addition to a regular spread pilot signal. The IQ-swapped spreading sequence is the spreading sequence whose real and imaginary components are the imaginary and real components of the regular spreading sequence. The gain imbalance can be estimated by a function of the difference between the real component of a regular despread pilot signal and the imaginary component of the IQ-swapped pilot signal. In a similar fashion, the phase imbalance is estimated by a function of the difference between the imaginary component of a regular despread pilot signal and the real component of the IQ-swapped despread pilot signal. A controller such as a DSP (102) uses the gain and phase imbalance estimates to control a gain and phase correction circuit (104). In one embodiment, the correction circuit (104) includes a plurality of multipliers (202-212) and a ROM look-up-table (202) in order to perform the imbalance correction.